DISSEMINATION WORKSHOP REPORT

Improving treatment of under five children with fever in accordance with standard guidelines in the Lake Zone of Tanzania, 2012-2014

SEPTEMBER 2014

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Acronyms

ACT	Artemisinin combination therapy
CHMT	Council Health Management Team
CM	Case management
d-IMCI	Integrated management of childhood illness distance learning
DMO	District Medical Officer
HMIS	Health Management Information System
HR	Heart rate
IMCI	Integrated management of childhood illness
IPD	Inpatient department
MoHSW	Ministry of Health and Social Welfare
mRDT	Malaria rapid diagnostic test
MSH	Management Sciences for Health
PQIT	Pediatric quality improvement teams
OPD	Outpatient department
RCM	Referral Care Manual
RHMT	Regional Health Management Team
RMO	Regional Medical Officer
RR	Respiratory rate
THP	Tibu Homa Program
URC	University Research Co., LLC
USAID	United States Agency for International Development

ABSTRACT

Over the past three years, the Tibu Homa Program (THP) has been working to improve case management of children under five with fever in the Lake Zone (Kagera, Mara, Mwanza, Geita, Shinyanga, and Simiyu regions) of Tanzania through system strengthening interventions. The Lake Zone was identified by the Ministry of Health and Social Welfare (MoHSW) and the United States Agency for International Development (USAID) because of its high under-five mortality rate, above the national average, and a high prevalence of malaria. A new adapted Integrated Management of Childhood Illness (IMCI) guideline, among other things directs treating children with fever for malaria upon laboratory evidence and guides on how to manage other malaria- negative patients for other causes of fever.

THP has been using adapted IMCI and quality improvement guidelines to train health care workers from both public and private health facilities in classrooms, conducting monthly supportive supervision and clinical mentorship visits to health facilities to achieve compliance with case management standards by assisting them to address problems in the processes of care that hinder compliance.

Trained health care workers were able to train fellow health care workers by introducing training in their routine services, making guidelines available, and conducting regular peer mentorship, case reviews, and hospital death audits. These practices, coupled with external regular supportive supervision and mentorship visits by Regional and Council Health Management Teams (RHMTs and CHMTs) and THP staff, helped to improve compliance with standard guidelines.

Assessments conducted by clinical mentors using case reviews during routine supportive supervision visits indicate that compliance to care guidelines has improved from 5% in January 2013 to 40% in March 2014 and that completion of the steps in IMCI in children with fever improved from 50% in January 2013 to 80% in March 2014. A similar trend was observed for children presenting with other IMCI conditions. The percentage of outpatient, laboratory-confirmed malaria cases (uncomplicated malaria) that received correct antimalarial drugs (such as artemisinin combination therapy) improved and remained relatively steady above 90%.

Improving health care workers' skills through classroom teaching and on-the-job peer training, coupled by regular supportive supervision and clinical mentorship visits by RHMT and CHMT members, is critical for improving compliance with standard case management guidelines.

I. INTRODUCTION

Integrated management of childhood illness (IMCI) was developed by the World Health Organization and the United Nations International Children's Fund to reduce childhood morbidity and mortality in resource-limited settings. IMCI was introduced in Tanzania in 1996 and scaled up to all districts in the country in 1998.

In a multi-country study including Tanzania, IMCI implementation improved the quality of care provided by health care workers (HCWs), lowered under-five mortality by 13%, and was cost-effective.

Previous research has shown that many health workers do not adhere to IMCI guidelines, particularly for the management of severe illness.

Some of the factors observed to be contributing to health workers' non-adherence to IMCI guidelines are: the use of single, narrow diagnoses rather than IMCI classifications; the belief that chloramphenicol is unacceptably toxic; the perception that referring severely ill children is often unnecessary; shortage of medicines and supplies; frequent turnover of trained HCWs; inadequate mentorship and supportive supervision; inadequate supplies of IMCI guidelines and job aids; and insufficient refresher courses. An approach that utilizes a bundle of interventions is therefore more likely to improve compliance with the standard guidelines.

The 1996 IMCI guidelines were operational until 2011 when they were replaced with new guidelines adapted by the Ministry of Health and Social Welfare (MoHSW) with support from Tibu Homa. In the new guidelines, the algorithm for fever directs treatment for malaria to be done upon laboratory evidence and to manage malaria negative children for other causes of fever. This was made possible with the mRDT national role out since 2009.

The USAID-funded Tibu Homa Program (THP) has been working in the Lake Zone regions of Tanzania since 2011 to reduce morbidity and mortality of children under five years of age by developing health care worker capacity to manage cases of febrile illness at the facility level (both public and private). Tibu Homa is implemented by University Research Co., LLC (URC) in collaboration with Management Sciences for Health (MSH) and Amref Health Arica.

II. METHODOLOGY

In order to improve the diagnosis and treatment of children with severe febrile illnesses, THP in collaboration with Regional and Council Health Management Teams identified four health care workers (clinicians and nurses) that were involved in the care of children from hospital and health center pediatric outpatient departments (OPD) and inpatient departments (IPD) and one or two health care workers from dispensaries. These together with one health care worker from the laboratory and pharmacy units each formed the multidisciplinary health facility pediatric quality improvement teams (PQITs).

The nurses and clinicians from hospitals received a three-day case management training using the Referral Care Manual (RCM), *Management of a child with a serious infection or severe malnutrition*. Clinicians and nurses from health centers and dispensaries received a three-day IMCI training using the 11-day training guidelines initially before adopting the IMCI distance learning (d-IMCI) package for health center and dispensary health care workers.

All participants from health centers and dispensaries received supply chain management training since all of them are involved in managing medicines and supplies. The pharmacists and the laboratory technologists from the hospitals received a three-day supply chain management training using the approved national guidelines. All participants received quality improvement training following which they identified gaps in compliance with standard guidelines and developed work plans targeting the problems identified.

Table 1 lists the most common problems encountered in compliance with case management standards and the kinds of actions that facility improvement teams implemented to close gaps.

Table 1: Problems Considered Contributing to Poor Compliance with Standard Case Management Guidelines and Changes Implemented to Improve Compliance

Ser. No.	Area of Care	Problem identified	Solution
1	Health care workers have inadequate knowledge and skills	-HCWs not updated on new guidelines -New guidelines and job aids are not available -No internal clinical mentorship and supervision to improve HCW skills -No routine weekly case reviews and death audits	The health facility PQIT train other HCWs in Case Management using the updated guidelines, introducing job aids, guidelines at consultation rooms, M&E and Health Management Information System (HMIS) tools into routine health facility care. -Conduct internal mentorship and supervision monthly to improve HCW skills -Introduce weekly case reviews and death audits
2.	Poor patient flow that lead to low clinic efficiency	-No pediatric OPD, long queues, prolonged waiting time, prolonged hospitalization, and missing services -No triaging and no emergency care -Inadequate ward rounds and long turnaround times for results -No clinics for patient follow-up	-Establish pediatric OPD -Change pattern flow to prioritize under-fives care and treatment and provide for emergency care -Integrate dispensing and mini-lab services and documenting registers at pediatric OPD -Make available duty rosters for daily ward rounds and standard operating procedures for results management - Prepare rosters for follow-up clinics

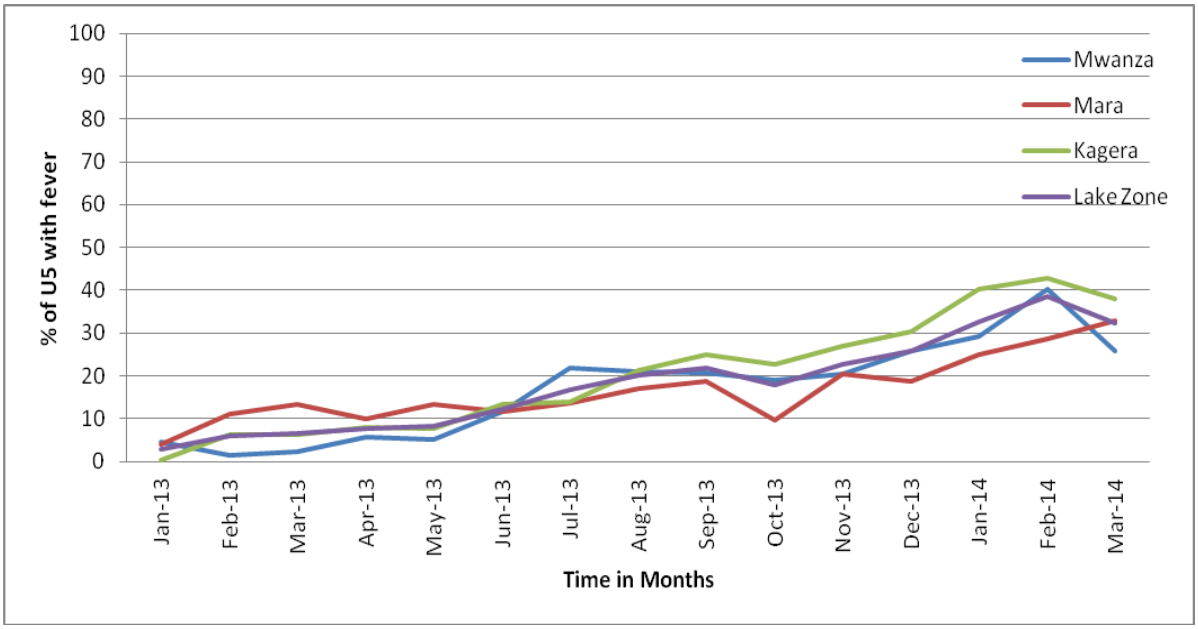
A team of Regional Health Management Team (RHMT) and Council Health Management Team (CHMT) members, THP staff, and clinical and logistic mentors visited the health facilities to provide coaching, mentorship, and supportive supervision. Columns were introduced in the Health Management Information System (HMIS) registers to document all children coming to the health facility with fever and the duration of the fever. The child was identified to have fever by history from the parent, or he felt hot at the time of visitation or had a temperature ≥38.5°C. Treatment received was obtained from HMIS Register Number 5.

Compliance with standard guidelines was obtained through clinical mentors' assessments carried out during the regular supportive supervision/mentorship visits through case reviews of children with fever that were seen the previous month using a standard tool (see standard checklist in the Appendix). Five cases of children 0-2 months and 2 months–5 years from IPD and five cases from OPD for each age category were randomly selected for the assessment.

III. RESULTS

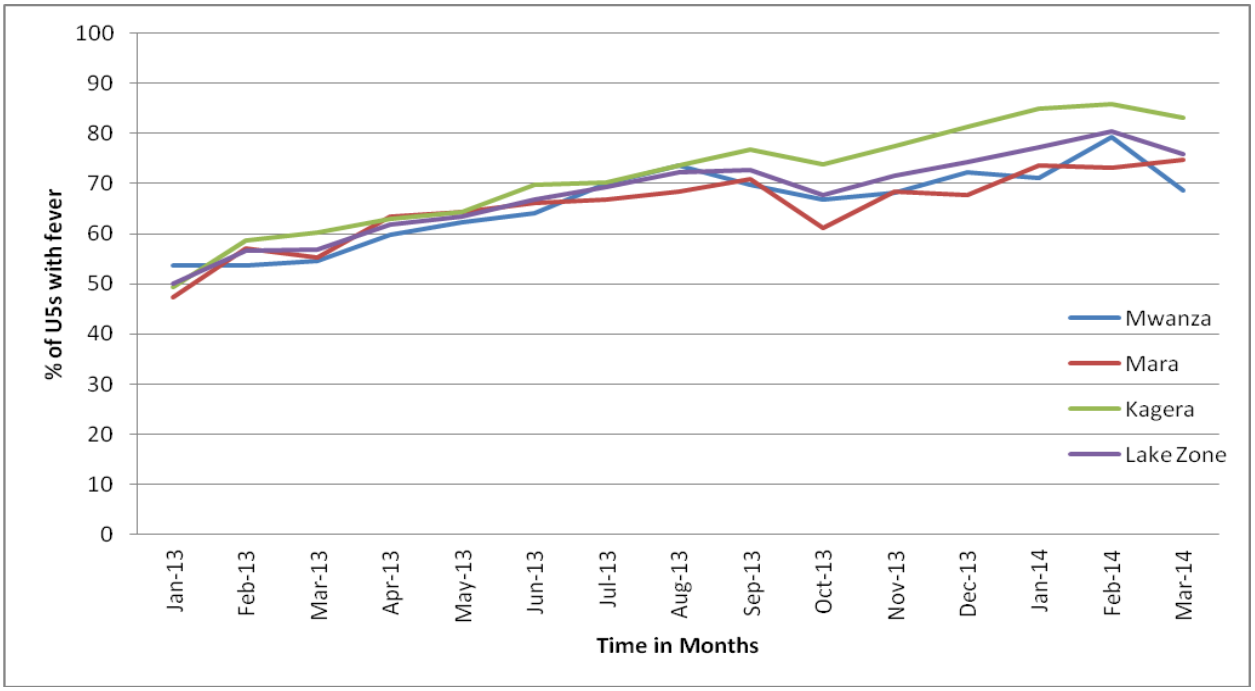
The percentage of children that were managed according to standards (either RCM for severe cases or IMCI guidelines) improved from 5% in January 2013 to 30% in March 2014. There are 14 steps for IPD and 10 steps for OPD that a child should be taken through to be considered as managed according to the algorithim. Kagera Region appears to have been doing relatively better than Mwanza and Mara, which are less compliant (see Figure 1).

Figure 1: % of Children under Five with Fever Correctly Assessed and Treated using IMCI Algorithm in Mwanza, Mara, and Kagera Regions, January 2013 – March 2014



Facility staff have steadily increased the percentage of steps of the IMCI algorithm that they completed correctly, has been steadly increasing from a lower level of 50% in January 2013 to 75% by March 2014 (see Figure 2).

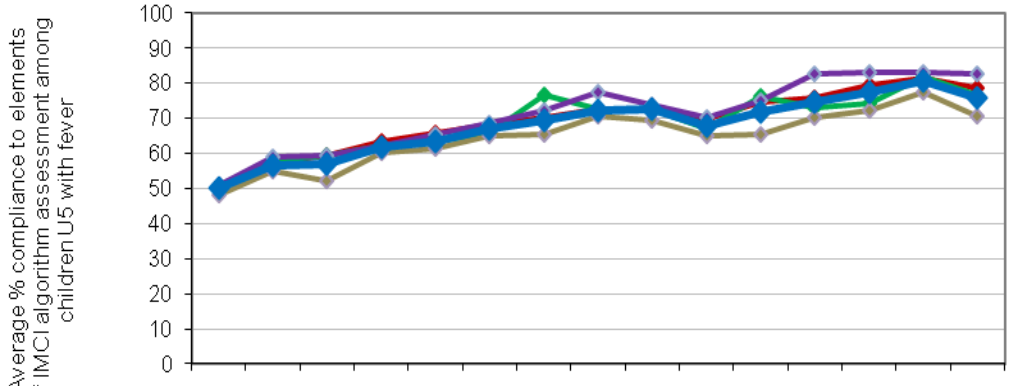
Figure 2: % of Steps (14 and 10 for IPD and OPD respectively) of the IMCI Algorithm Correctly Completed for Children under Five with Fever in Mwanza, Mara, and Kagera Regions, January 2013 – March 2014



Similarly, compliance with standard guidelines for children with causes of fever other than malaria have been increasing at the same rate as those confirmed having malaria (see Figure 3).

Figure 3: Average Percent Compliance with Elements of the IMCI Algorithm Assessment among Children under Five with Fever Disaggregated by Condition, 173 sites in Mwanza, Mara, and Kagera Regions, January 2013 – March 2014

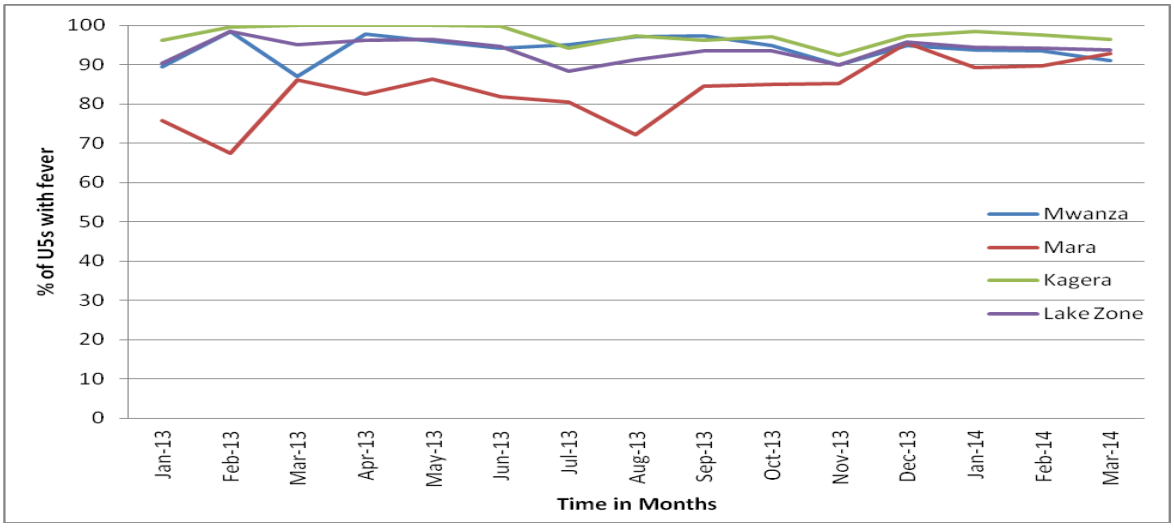
Data Source: Patient records
Sampling Method: Random sample of 10 IPD and 10 OPD records



	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Jul-13	Aug-13	Sep-13	Oct-13	Nov-13	Dec-13	Jan-14	Feb-14	Mar-14
# malaria elements assessed	1174	966	890	864	918	1300	1766	1650	1410	1838	1522	968	1080	868	824
% malaria elements correct	51	57	59	64	66	68	70	73	73	70	75	76	79	81	79
# diarrhea elements assessed	1174	966	890	864	918	1300	1766	1650	1410	1838	1522	968	1080	868	824
% diarhhea elements correct	51	58	59	62	64	66	77	72	73	67	76	73	74	82	76
# pneumonia elements assessed	2094	1674	1926	2526	2306	1918	1922	2040	2010	2174	1846	1794	1682	2090	2262
% pneumonia elements correct	51	59	59	62	65	68	72	77	74	70	75	83	83	83	83
# other condition elements assessed	3100	3804	4402	5370	4652	4038	4560	5140	5290	5376	5368	4474	4554	4878	5454
% other condition elements correct	48	55	52	60	61	65	65	70	69	65	65	70	72	77	70
Total average % compliance	50	57	57	62	64	67	69	72	73	68	72	74	77	80	76
Sites reporting	149	154	170	173	171	170	172	173	172	173	169	158	169	171	169

The percentage of laboratory-confirmed malaria outpatients (uncomplicated malaria) that received correct antimalarial treatment (i.e., ACT) improved and remained relatively steady above 90%. Kagera Region performed much better than Mwanza and Mara. In January 2013, only 75% of uncomplicated malaria cases in Mara Region received correct antimalarial treatment; this has improved to a level of 90% by March 2014 (see Figure 4).

Figure 4: % of Children under Five with Lab-confirmed (mRDT/Microscopy) Malaria who Received Treatment with Anti-malarials according to National Malaria Treatment Policy, January 2013 – March 2014



IV. DISCUSSION

Improving compliance to standard guidelines very much depends on a number of factors, such as health care worker performance; availability of medicines and supplies; social and economic factors of families with sick children; use of single, narrow diagnoses rather than IMCI classifications; not adhering to referral guidelines and the perception that referring severely ill children is often unnecessary; limited coverage of IMCI within the HMIS; lack of recording forms; inadequate human resources; lack of IMCI guidelines and job aids; and lack of IMCI content in routine supervision. Most gaps were identified by the HCWs during trainings, after which they developed work plans to address those that were health facility based. There were other parallel facility-based interventions addressing availability of medicines and supplies supported by THP.

Percentage of children that were managed according to standards improved from 5% in January 2013 to 30% in March 2014 (Figure 1). A child is considered to be managed according to IMCI guidelines if all the steps have been completed. This required improved patient information documentation in patient files/OPD cards. Although all health facilities were provided with the laminated recording forms to guide them through the steps, HCWs found writing information on all the steps to be time-consuming and compromised their work, given a big patient load. As most health facilities do not have the official patient files/OPD cards, they feel documenting every piece of information will lead to filling up the exercise books that are purchased by parents, adding unwanted costs on their part.

However, observations during support supervision revealed that most of the steps are completed by most health care workers, from assessing general danger signs to assessing the four main symptoms: cough/difficult breathing, diarrhea, fever, and ear infection. The rest of the steps—assessing for malnutrition/anemia, HIV testing/status, feeding, immunization, and counselling—are not done by all. From our interventions done so far, about 80% of the steps are accomplished for the child presenting with fever (Figure 2), and a similar level of performance is seen for a child presenting with other IMCI conditions (Figure 3).

Standardization of patient information obtained during assessment (history taking and physical examination) that requires HCWs to fill in or circle in spaces provided might help them spend less time writing. THP initially provided such forms as they appear in the RCM, but health facilities could not replenish them whenever they ran out. Complete documentation of patient information is important if the assessment is going to be based on case reviews.

Facilities with health facility managers who have owned the improvement plans and supported PQITs to implement the plans have achieved compliance levels of 90-100%. Regional hospitals with a higher level of trained professionals are the worst-performing health facilities. This has also been observed by Zurovac et al. in Kenya and Cabana.

Improving health care workers' performance is critical for putting evidence-based interventions into practice. The program has learnt that classroom training alone has not been associated with improved practices as observed earlier in Uganda. Follow-up site visits done a few months after classroom training found many health care workers that had not started implementing what they have learnt. Regular supportive supervision and clinical mentorship have been found to produce better results.

V. RECOMMENDATIONS

1. RHMTs and CHMTs should budget and distribute case management guidelines to all health facilities.
2. Clinical mentorship should continue to be part of the regular supportive supervision.
3. All health facilities should have official recommended patient files with standardized patient information documents/papers.

4. Clinical mentorship visits should include clinical assessment of compliance with standard guidelines.
5. All health facilities should have on-the-job training schedules and send quarterly training reports to District Medical Officers.
6. All health facilities should own and support PQITs.

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APPENDIX: CLINICAL MENTORS' COMPLIANCE CHECKLIST

Tibu Homa Data Collection Form 2 for Indicator 5 IMCI Algorithm New Version

V2: Jan

Name of health facility: _____ Region: _____ District: _____

Name of data collector: _____ Month/Year observed: _____ Date: _____

	Outpatients											Inpatients										
	0-2 months					2 months – 5 years						0-2 months					2 months – 5 years					
											Patient registration number											
											Sex (M/F)											
1											Age as written											1
2											Weight recorded (Y/N)											2
3											Triage severity (P1, P2, P3) recorded (Y/N)											3
4											All main symptoms identified (Y/N)											
											All observations (from convulsions to liver size inclusive) (Y/N)											4
5											All vital signs are recorded Temp – Y/N RR – Y/N or NA HR – Y/N or NA											5
6											Correct Classification (Admission diagnosis for IPD) (Y/N)											6
											Confirmed diagnosis for IPD (Y/N)											7

7											Investigations done for the relevant classification/diagnosis (Y/N)												
8											Treatment correctly prescribed for diagnosis (Y/N)												8
9	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	All treatment doses given as prescribed (Y/N)												9
10											Explained to caretaker (Counseling) (Y/N)												10
											Day 1	All first 7 elements of observation recorded as prescribed (Y/N)											11
											Days 2 & 3	Temp. recorded at least once (Y/N)											12
												HR & RR recorded at least once (Y/N)											13
												Investigations done for the relevant diagnosis at least once (Y/N)											14
	/10	/10	/10	/10	/10	/10	/10	/10	/10	/10	/10	Total score all elements	/14	/14	/14	/14	/14	/14	/14	/14	/14	/14	
D											Assessor's Diagnosis (M=malaria, P=pneumonia, D=diarrhea, O=other)												

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